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(3 pages)

This department does not conduct a commercial nursery, but propagates and distributes new varieties originated in this department or imported from similar climates of the Old World. The work of originating new fruits has been carried on the past 37 years by the writer. Many acres of seedling fruits have been grown since the work was started by the writer in 1895. The improvement in size and quality of each plant generation is greater year by year. Hybridization and selection are the main methods of improvement.

The work thus far is described in bulletin 224, May 1927, and in the annual spring lists since that time. Other bulletins are: Experiments in Plant heredity, Bulletin 237, Hardy Roses for South Dakota, Bulletin 240; Bulletin 246, The Shade, Windbreak and Timber Trees of South Dakota; Bulletin 254, Evergreens in South Dakota; Bulletin 260, The Ornamental Trees of South Dakota; Bulletin 263, Shrubs and Climbing Vines of South Dakota.

Terms: The money received from the sale of plants makes it possible to do the work on a larger scale than would otherwise be possible. Those who have followed the progress of the work for many years know the importance of ordering promptly, as soon as this list is received, as the supply of plants is limited. Terms are cash with order. No credit except to Government Experiment Stations.

Scions of the orchard fruits described in bulletin 224 will be supplied for special orders as far as possible at the rate of not less than 2 scions of any variety for \$1.00.

OFFERED FOR THE FIRST TIME are the following: 4 pear, 2 apple, 7 crab-apple, 1 cherry. The experiments in taming the native American apple are yielding very encouraging results, indicating that the future winter apples--apples that will keep all winter in an ordinary cellar--will come from this line of work. The new apples with red flowers and red flesh will attract attention throughout the apple-growing world because they combine both the useful and the ornamental.

FOUR NEW HARDY PEARS

Many thousands of pear seedlings are coming on at this station and in the State Orchard at Watertown. The object is to originate hardy pears immune or strongly resistant to fire blight, the bacterial disease which kills pear trees so frequently. Fire blight is a bacterial disease native of the North American continent. From my trip to North Manchuria in 1924 I brought back *Pyrus Ussuriensis* which is native of North Manchuria and eastern Siberia, from the farthest northwestern limit where it is found native, a few miles east of Harbin. This species is strongly resistant to fire blight.

* SADKO pear. Offered for the first time. A fine large red pear of good quality. Pedigree: Russian sand pear x Vermont pear. Strong tree with good forks. Sadko is the hero of a Russian legend. Scions only; price \$2.00 per foot.

* KRYLOV pear. Offered for the first time. A fine large early pear of good quality. Pedigree: Saponsky pear of eastern Siberia x Lincoln pear. Named in honor of a Russian poet. Scions only; price \$2.00 per foot.

* SLADKY pear. Offered for the first time. A large pear, $2\frac{1}{2}$ inches in diameter; yellow, sweet, good flavor. Sladky is the Russian word for "sweet". Pedigree: Russian sand pear x Lincoln pear. Keeps well; season probably autumn. Scions only; price \$2.00 per foot.

* FINLAND pear. Offered for the first time. A yellow pear, 2 inches in diameter, of excellent quality. Stem extra long. An open-pollinated seedling of the Yellow Early Finland pear planted next to a row of Russian sand pear. This Finnish pear was imported by the writer from Russia in 1904. Judging by its superior hardiness and blight-resistance, the Finland must be a hybrid of the Yellow Early Finland and the Russian sand pear. Scions only; price \$2.00 per foot.

HARBIN pear. From the northwestern limit of *Pyrus Ussuriensis*, about 50 miles east of Harbin, Manchuria, where the temperature ranges from about -47° F. The bright red and yellow foliage in the fall makes this tree a fine ornamental. The value of this pear is its strong resistance to fire blight which kills the ordinary pear trees. Stocky transplanted trees, each \$1.00.

HARDY APRICOTS. The apricot seed which I brought from native trees from near Harbin, North Manchuria, 1924, bore very freely the past season. The trees were greatly crowded in the nursery row. The fruit is of good size and delicious quality. Trees now in propagation, and I trust will be ready for distribution fall 1933 and spring 1934.

NEW APPLES AND CRABAPPLES

The past season many acres of apple and crabapple seedlings were cleared at this station. Many choice varieties are left as a successful result of this work. The following are worthy of a trial. When not otherwise specified, scions only are available at the rate of one dollar per scion. This means a scion of about one foot or less of the current season's growth, suitable for grafting.

✓ IZO crab, introduced 1919, is found by John Robertson, Hot Springs, South Dakota, to be of special value as a stock for top-grafting standard apples. The fruit is a good winter keeper.

INTERNATIONAL APPLES. At this time I am studying over 600 native wild crab and other hybrids. My International Series appear of the most promise: the American wild apple contributes long winter-keeping; the Siberian apple, extreme winter hardiness; and the European cultivated apple, large size and high quality of fruit.

ZELMA crabapple. Offered for the first time. Another of my new series of crab-apples with red flowers and red flesh. Fruit medium size, juicy, subacid, cooks into good red sauce. Both ornamental and useful. Pedigree: Pyrus Malus Niedzwetskyana x Yellow Siberian crab. Trees, one year buds on Siberian crab stock, each \$1.00.

ZITA crabapple. Pedigree: Pyrus Malus Niedzwetzkyana x Yellow Siberian crab. Flowers red, fruit red, regular, juicy, sweet, good quality, fully $1\frac{1}{2}$ inches in diameter. Flesh red, especially inside core outline. A few scions only, \$2.00 each.

✓ ZAZA crabapple. Another crab with bright red flesh. Flowers red. Fruit red, exceeding $1\frac{1}{8}$ inches in diameter. A complex hybrid of Duchess apple x Pyrus Malus Niedzwetzkyana with Siberian crab, Pyrus baccata. Scions only, \$2.00 each.

+ VOLGA (of Hanover) apple. Offered for the first time. A seedling of the Russian apple Anisim topworked on Virginia crab. Fruit $2\frac{3}{8}$ inches diameter on much crowded trees, round, conical, brightest red all over with deeper red stripes and splashes. Basin very shallow, narrow, smooth, not corrugated as in Anisim. Flesh fine, juicy, pleasant subacid. Remarkable for the light red tint of the flesh outside the core outline. Season, late fall. Scions only, each \$1.00.

Travel Note; Anisim, named Beauty apple in its native land, I saw in splendid display at the great Agricultural Exposition in Kiev, southern Russia, in 1897. It was imported under various names, especially by Prof. J. L. Budd.

✓ TOLMO apple. Introduced 1932 as Otto, but this name is now canceled because the name had already been used for a Canadian seedling. Tolmo is condensed from the names of the parent varieties. Seedling of Tolman Sweet top-grafted on Duchess of Oldenburg apple. Fruit good size, $2\frac{3}{4}$ inches in diameter; Duchess coloring, with white flesh, pleasant subacid; quality very good. Season fall. One-year budded trees, each \$1.00.

✓ LINA apple. A seedling of Malinda and much like it in conical shape with blush, but with no knobs. Remarkable for its perfectly conical shape with no corrugations. The flesh is mild subacid and cooks up easily into light yellow sauce of good quality. It is much better than the Malinda itself which does not cook up easily. Name derived from Malinda.

BISON crabapple. Large, red, of excellent quality. Pedigree: Jonathan apple x Silvia crab, making it one-half Jonathan apple, one-fourth Siberian crab, Pyrus baccata, and one-fourth Yellow Transparent apple. The tree is a heavy bearer. Under orchard conditions this may turn out to be almost an apple in size.

✓ CAPUTA crabapple. Pedigree: Ivan crab x Kentucky Mammoth wild crab. A large, red, juicy, sweet, subacid crab, $1\frac{1}{4}$ inches in diameter. Tree productive. This is another of my International Series, combining the apples of North America, Europe and Siberia.

✓ WANBLEE crabapple. Offered for the first time. Pedigree: Elk River, Minnesota wild crab x Bismarck apple crossed with pollen of Wolf River apple. This makes the pedigree three-fourths tame apple and one-fourth native wild crab. The fruit oblate, $2\frac{1}{8}$ inches in diameter, golden-yellow ground with brilliant red over most of the surface which makes it very attractive in appearance. In flavor the wild crab is dominant. It has possibilities for the plant-breeder and as an ornamental tree.

✓ WAUBAY crabapple. Offered for the first time. Pedigree: Grimes Golden apple x Mercer Unguarded wild crabapple. The first fruits $1\frac{1}{4}$ inches in diameter, round, conical, brilliant red, evidently a remarkable all winter keeper. The Waubay evidently combines the rich, spicy, subacid sweet of the Grimes Golden with the long keeping capacity and hardiness of the seedling of the Mercer wild crab. Mercer Unguarded is an open-pollinated seedling of the Mercer crab from the Iowa Experiment Station. My recollection from student days at Ames is that the Mercer was planted near a Wolf River apple. This would explain the brilliant red color. The Waubay has fruited on trees greatly crowded in the seedling plantation. My experience indicates that when given abundant room as orchard trees that the fruit becomes much larger. Scions only, \$1.00 each.

✓ MAGA apple. The Maga crabapple first introduced in 1922 as a crabapple, a seedling of McIntosh apple top-grafted on Virginia crabapple, must now be called an apple. Under orchard conditions in cultivated soil, the fruit attains full commercial apple size and combines the high quality of the McIntosh apple with Siberian hardness, the Virginia being part Siberian crab.

✓ AMSIB crabapple. Introduced 1932. Female parent: Wild Red crab, a form of *Pyrus loensis* from Iowa. Male parent: a *Pyrus baccata* which I brought from Moscow, Russia in 1906. The name "Amsib" is condensed from the names America and Siberia. A good sized crab, about $1\frac{3}{4}$ inches in diameter, green and yellow, keeps all winter, with fragrant, wild crab flesh but neutral rather than bitter. It is only an ornamental tree at present, but it is the first hybrid of the indigenous American apple with the Siberian crab and has possibilities for the future. Trees, one-year buds each \$1.00.

✓ KOLA crabapple. Introduced 1922. Pedigree: Elk River wild crab x Duchess of Oldenburg apple. Recently this tree has become of great interest to cytologists and plant-breeders the world over, because it is the only known tetraploid among cultivated apples, having 68 chromosomes. One-year budded trees, each \$1.00.

✓ CHINOOK crabapple. Introduced 1924. Pedigree: Baldwin apple x Elk River wild crab. This has been attracting much attention recently because the fruit has been kept 18 months in an ordinary cellar. This is of interest to plant-breeders. Described in Bulletin 224. One-year buds on Siberian stock, each \$1.00.

? ELK RIVER wild crab. Grown from seed of the native wild crab, *Pyrus loensis*, collected at Elk River, about forty miles north of Minneapolis. An interesting ornamental tree. Fruit small, acid and with much acerbity. One-year seedlings, 5 for \$1.00.

✓ MANA hybrid sandcherry. Offered for the first time. A hybrid of the native sandcherry of Dropmore, western Manitoba, with the Burbank, a Japanese plum. Fruit round, 1 inch in diameter. The green-yellow flesh of pleasant quality and cooks into rich, red, good flavored sauce. Pit of medium size with rounded edges and no sharp points. The round shape of this fruit will sell it as a cherry. The name is condensed from Manitoba. This new cherry for the prairies should be of interest at the North. One-year plants budded on native plum, each \$1.00.

✓ SANOBA hybrid sandcherry. Introduced 1929. Pedigree: Sapa x Dropmore, Manitoba sandcherry. The name is made up from the two words, Sapa and Manitoba. The Sapa is my hybrid of the South Dakota Sandcherry with a Japanese plum and is famous for its black-red flesh of choice quality. At Brookings the Sanoba is a good plant, productive, of upright habit; fruit thirteen-sixteenths inch in diameter; flesh red, good quality; pit round and small. Transplanted buds on native plum stock, each \$1.00.

ALIKA rose. A brilliant red double rose which I brought from Russia in 1906 under the name of *Rosa gallica grandiflora*. Flowers large, fragrant, semi-double, with as high as 47 petals, with many stamens. Color brilliant red with no purple, mauve, or violet red in it. It gets far away from the mauve pink of most of our wild prairie roses. Described in South Dakota Bulletin 240. A few plants on own roots can be spared. Plants each \$1.50.

PROGRESS IN THORNLESS ROSES: In clearing twenty acres of rose seedlings in 1932 in the State Rose Garden at Sioux Falls and at State College, a few 100% thornless rose plants were selected for further work. Both leaves and wood are smooth. Some 5000 plants with thornless wood have already been selected for the hardy thornless stocks, a project with federal aid.

